

National Aeronautics and  
Space Administration  
**Headquarters**  
Washington, DC 20546-0001

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Reply to Attn of:

OI

MAR 18 1994

92-297

Ms. Donna Searcy  
The Secretary  
Federal Communications Commission  
1919 M Street, NW  
Washington, DC 20554

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MAR 21 1994

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

Dear Ms. Searcy:

The National Aeronautics and Space Administration hereby submits comments regarding the establishment of an advisory committee to negotiate proposed regulations for use of the 27.5 GHz band by the Fixed Satellite and Local Multipoint Distribution Services. Additionally, this Agency requests membership on the committee in the event one is convened.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles T. Force", written over a dark, rectangular stamp.

Charles T. Force  
Associate Administrator for  
Space Communications

Enclosure

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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

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**MAR 21 1994**

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

In the Matter of

Comments Regarding the Establishment  
of an Advisory Committee to Negotiate  
Proposed Regulations

)  
)  
) CC Docket No. 92-297

COMMENTS OF THE  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
AND  
APPLICATION FOR ADVISORY COMMITTEE MEMBERSHIP

Charles T. Force  
Associate Administrator for  
Space Communications  
National Aeronautics and Space  
Administration

March 21, 1994

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## **SUMMARY**

NASA supports the Commission's proposal to establish an Advisory Committee to negotiate proposed regulations for use of the 27.5-29.5 GHz band by the Fixed Satellite Service (FSS) and the proposed Local Multipoint Distribution Service (LMDS). NASA looks forward to being a member of the Advisory Committee and toward finding a win-win solution that will allow both the FSS and the proposed LMDS to produce their promised benefits for the American public.

NASA believes that the first item of business for the Committee should be determination of the potential for satisfactory operation of LMDS and FSS networks in a common frequency band. To aid in achieving that objective, NASA is willing to make its laboratories and personnel available to make receiver interference susceptibility measurements should providers of LMDS services and the FCC agree. We believe that the availability of quantitative data on this subject when the Committee is convened could greatly expedite the work of the Committee.

If co-frequency operation proves to be not feasible, the Committee should then examine the advantages and practicality of using digital modulation techniques to reduce required system bandwidths. NASA also possesses considerable expertise in digital

techniques and data compression. If desired, we will make these experts available to aid the Committee.

NASA urges the Commission to leave the possibility open for the Committee to examine use of alternative frequency bands. It is possible that, in spite of best efforts, the Committee can find no other consensus solution that will permit both the FSS and the LMDS to realize their full potential for bringing needed new telecommunications services and economic opportunities to the American public. In that event, the Committee should have the flexibility to craft a win-win solution for the FSS and LMDS by examining the suitability of alternative spectrum and the potential approaches that could make it available for timely introduction of these new services.

NASA believes that all parties having a legitimate interest in use of the 27.5-29.5 GHz band should be afforded an opportunity to be represented on the Committee. We specifically suggest that several parties in addition to those identified in the Notice be included in the makeup of the Advisory Committee. We believe that participation by the National Telecommunications and Information Agency (NTIA), the American Institute of Aeronautics and Astronautics (AIAA), and a user of state-of-the-art telecommunications from the medical community would materially aid in finding proper answers to the difficult issues to be addressed by the Committee.

NASA would be pleased to offer Dr. Edward Miller from our Lewis Research Center to act as the facilitator for the Committee if the Commission and the Committee should so desire. Dr. Miller has excellent credentials for this task and has the experience of recently having served the Commission as the facilitator for the Big LEO Committee. As an alternative, in the event that Dr. Miller is not selected for this role, NASA would offer the services of Mr. Warren Martin of the California Institute of Technology's Jet Propulsion Laboratory (JPL) to serve as the facilitator.

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of

Comments Regarding the Establishment  
of an Advisory Committee to Negotiate  
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CC Docket No. 92-297

**COMMENTS OF THE  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
AND  
APPLICATION FOR ADVISORY COMMITTEE MEMBERSHIP**

The National Aeronautics and Space Administration ("NASA")  
hereby submits its comments in response to the Public  
Notice("Notice") issued in the above-captioned proceeding.

**I. INTRODUCTION**

NASA applauds the Commission for its proposal to establish an  
Advisory Committee to negotiate proposed regulations for use of the  
27.5-29.5 GHz band by the Fixed Satellite Service (FSS), allocated  
worldwide on a primary basis, and the proposed Local Multipoint  
Distribution Service (LMDS).

NASA has pioneered space communications in cooperation with the FCC and U.S. industry since 1961 and welcomes the opportunity to seek an equitable resolution to the issues raised by the proposed rulemaking to establish an LMDS. We believe that this can be accomplished in a manner that the nation might enjoy the benefits that both the LMDS and the FSS promise to provide in the way of new, innovative, cost-effective, telecommunications services.

In keeping with the Clinton Administration's initiative to enhance the competitiveness of U.S. industry, NASA's mission in space research and technology is to pioneer innovative space concepts and technologies, leveraged through industrial, academic and government alliances, to ensure U.S. commercial competitiveness and preeminence in space. NASA, in concert with this mission, launched the Advanced Communications Technology Satellite (ACTS) in September, 1993. The ACTS satellite is designed to pioneer new technology and applications in the 30/20 GHz bands by the U.S. satellite communications industry and telecommunications users, and to demonstrate new classes of service consistent with the aims of the National Information Infrastructure (NII). NASA is sponsoring a 2 to 4 year experiments program with ACTS to enable industry and academia to verify and demonstrate the innovative, new applications and services enabled by the ACTS technologies.

NASA's interests in ensuring that the 27.5-29.5 GHz band remains viable for use by the FSS thus go well beyond concern only



about the ACTS satellite. NASA is concerned with the broader public policy issues of making government cooperation with U.S. industry a success and thereby creating new employment opportunities and business opportunities for the American people.

NASA looks forward to being a member of the Advisory Committee when it is established and pledges not only to negotiate in good faith to reach a consensus on rules for use of the 27.5-29.5 GHz band but to seek a win-win solution that will allow both the FSS and the proposed LMDS to produce their promised benefits for the American people.

## **II. SUBJECT AND SCOPE OF NEGOTIATED RULEMAKING**

NASA believes that the first order of business for the Advisory Committee should be determination of whether sharing of common spectrum between the FSS and the LMDS is feasible. The Committee deliberations could be halted if sharing should be found to be viable and consensus reached on rules to permit sharing. The Commission has received conflicting views on whether sharing is possible and a resolution of the question should be the Committee's highest priority task.

To aid in resolving this key issue, NASA would be willing to conduct, in partnership with the concerned companies, interference susceptibility measurements of LMDS receivers. NASA's Lewis Research Center has a wealth of experience in performing interference tests for industry on similar types of receivers. Such

tests, should LMDS proponents agree to participate, would remove much of the uncertainty that currently exists about the potential for sharing. NASA would further be willing to consider temporarily locating an ACTS terminal (either a T1-VSAT or the ACTS Mobile Terminal (AMT)) in the vicinity of an operational LMDS network for additional tests. We believe that these tests could be carried out in advance of the convening of the Advisory Committee in order to provide quantitative data for the Committee to consider immediately upon convening. In this way, the work of the Committee could be expedited. We encourage the FCC to act as a facilitator to initiate this cooperative, pre-Advisory Committee measurement program and to participate by observing the tests. Producing measured interference susceptibility data in conformance with this schedule will require an early start and extreme cooperation by all parties.

Should the Committee come to the conclusion that sharing in a common band is not feasible due to technical incompatibility or for economic reasons, it should then examine the potential benefits that digital modulation techniques might provide to accommodate both FSS and LMDS in the 27.5-29.5 GHz band. The Commission has received opposite views on the technical and economic feasibility of using digital modulation for LMDS. We believe that this topic can be readily resolved by a Committee ready to consider the question in good faith. We note that our Lewis Research Center and our Center for Civil Development of Space (CCDS) at Florida Atlantic University have a recognized expertise in this area gained through advancing the state-of-the-art in data compression technology and through

participation in the FCC's Advanced Television Advisory Committee. We will make our experts available to the Negotiated Rulemaking Advisory Committee to assist both LMDS and FSS proponents in resolving questions about the attributes, availability and cost of digital modulation technology.

Only after examining the technical issues discussed above would the Committee be in a position to consider the need and feasibility of splitting the 27.5-29.5 GHz between the competing interests. This result, akin to a "splitting the baby" solution if both LMDS and FSS are found to have legitimate need for the entire band in order to fully exploit the potential that they possess, would be an unhappy one. For that reason, we urge the Commission to allow the Committee to identify, as a last resort, other spectrum that might be made available in order to accommodate the needs of both the LMDS and the FSS. We recognize that a window of opportunity may exist for successful introduction of new telecommunications services. It would be appropriate for the Committee to recommend, in detail, how the delays that may attend consideration of other bands could be overcome so as not to jeopardize early introduction of needed new services.

### **III. PARTICIPANTS**

NASA believes that all parties having a legitimate interest in use of the 27.5-29.5 GHz band should be afforded an opportunity to be represented on the Committee. The Commission has identified

most of the potentially affected interests that would be candidates for membership on an Advisory Committee. Other FSS applicants and Fixed Service (FS) applicants may be identified prior to the time that the Committee is convened and it is NASA's view that such additional applicants should also be afforded the opportunity to participate on the Committee. The Commission also expresses an interest in participation by public interest advocacy groups, user groups, and educators and academics. In this regard, NASA offers the following suggestions for additional participants on the proposed Advisory Committee. NASA is of the opinion that participation by the National Telecommunications and Information Agency (NTIA) could be extremely valuable in seeking solutions that would permit both the FSS and LMDS to fully satisfy their potential for serving the public. We believe that addition of the American Institute of Aeronautics and Astronautics (AIAA) would enrich the process by providing an industry perspective of the potential market and benefits offered by satellites in the 30/20 GHz bands. There is also good reason to have the advice of educators and academics on the Committee. Many from these fields have needs for telecommunications that satellites are particularly well adapted to provide. The medical community is another group that will find great application for wideband satellite capabilities. Remote medical imaging and transmission via satellites such as ACTS to the offices of medical specialists is an application that has the potential for radically improving medical services to a large segment of our population. We note that the Mayo Clinic is a leader in development

and use of these new technologies and would be a valuable addition to Committee membership.

For its part, NASA nominates Mr. David Struba, Chief of our Spectrum Management Branch, to serve as its member on the Committee. He will actively participate in the work of the Committee and will work in good faith to resolve the issues to be addressed by the Committee.

#### **IV. FACILITATOR**

Should the Commission so desire, NASA would be pleased to offer the services of Dr. Edward Miller of our Lewis Research Center to serve as the neutral facilitator for the negotiations of the Committee. Dr. Miller served as the facilitator for the big LEO Negotiated Rulemaking Committee and according to all reports proved to be skilled at the duties required of that position. Dr. Miller assures us that he would have no difficulty maintaining strict neutrality in carrying out the duties of facilitator.

If the Commission or the Committee feel, for whatever reason, that Dr. Miller would not be a suitable choice as facilitator for this particular Committee, NASA would offer an alternative nominee for consideration. Mr. Warren Martin of the California Institute of Technology's Jet Propulsion Laboratory (JPL) has considerable experience and skill in chairing Committees and panels both in the domestic and international arenas. The JPL is a Federally Funded

Research and Development Center for NASA and its mission is primarily related to deep space research. Mr. Martin has not participated in the ACTS program in any way or in the technology development program for space communications. On the other hand, he is quite knowledgeable about telecommunications. Coupled with his organizational skills and technical and legal background, he too could, in our opinion, be an outstanding facilitator.

## **V. CONCLUSION**

In conclusion, NASA supports the Commission's proposal to establish a Negotiated Rulemaking Advisory Committee. NASA herewith applies for membership on the Committee. We have made suggestions for other parties that could contribute to these proceedings, namely NTIA, AIAA, a representative of the medical community plus any additional applicants to construct satellite systems and fixed, terrestrial systems that will use the 30/20 GHz frequency bands. We urge that the Commission seriously consider adding them to the list of concerned parties that are identified in the Public Notice.

NASA believes that the first item of business for the Committee should be determination of the potential for satisfactory operation of LMDS and FSS networks in a common frequency band. If co-frequency operation proves to be not feasible, the Committee should then examine the advantages and practicality of using digital modulation techniques to reduce required system bandwidths.

NASA urges the Commission to leave the possibility open for the Committee to examine use of alternative frequency bands. It is possible that, in spite of best efforts, the Committee can find no other consensus solution that will permit both the FSS and the LMDS to bring needed new telecommunications services and economic opportunities to the American public. In that event, the Committee should have the flexibility to craft a win-win solution for the FSS and LMDS by examining the suitability of alternative spectrum and the potential approaches that could make it available for timely introduction of these new services.

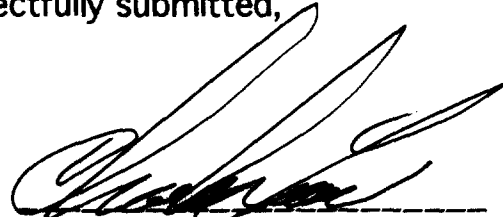
NASA would be pleased to offer Dr. Edward Miller to act as the facilitator for the Committee if the Commission and the Committee should so desire. Dr. Miller has excellent credentials for this task and has the experience of recently having served the Commission as the facilitator for the Big LEO Committee. As an alternative, in the event that Dr. Miller is not selected for this role, NASA would offer the services of Mr. Warren Martin of the JPL to serve as the facilitator.

NASA looks forward to working with the Commission, industry and public interest groups to find a workable solution to the issues of making adequate spectrum available for the LMDS and FSS. NASA would be willing to make its laboratories and personnel available to make receiver interference susceptibility measurements should providers of LMDS services and the Commission agree. We believe

that the availability of quantitative data on this subject could greatly expedite the work of the Committee. We also possess considerable expertise in digital techniques and data compression. If desired, we will make these experts available to aid the Committee.

Respectfully submitted,

By:

A handwritten signature in black ink, appearing to read 'Charles T. Force', written over a horizontal line.

Charles T. Force  
Associate Administrator for  
Space Communications  
National Aeronautics and Space

March 21, 1994